UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,785	01/04/2002	John H. Collins	7668	3874

7590 10/08/2003

ONDEO Nalco Company
Patent & Licensing Department
ONDEO Nalco Center
Naperville, IL 60563-1198

EXAMINER	
DRODGE, JOSEPH W	
ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/035,785	COLLINS ET AL.	
	Examiner	Art Unit	
	Joseph W. Drodge	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daigger et al (Daigger) in view of Pescher et al (Pescher), both of record.

Daigger discloses in a primary embodiment, treatment of activated sludge using a first bioreactor containing an immersed membrane filter to produce clarified water adjacent its outlet, followed by treatment of resulting, somewhat clarified water having a reduced amount of solids in a second bioreactor having a second immersed membrane filter. In such second bioreactor, filtration by the membrane adjacent the outlet of the bioreactor is preceded by preliminary treatment including addition of filter aid, oxidant and coagulant/flocculant (see especially column 2, line 59 through column 3, line 23 and column 6, line 64 through column 7, line 24). The coagulant or flocculant is stated in column 7 as being added in order to aid in the removal of residual suspended solids, phosphorous and other substances.

The claims firstly differ in requiring that the coagulant be added to the sludge, not to clarified wastewater as in such primary embodiment of Daigger. However, Daigger also disclose combining of the two bioreactors into a single bioreactor for treating the sludge (column 4, line 66 through column 5, line 3). Additionally, Daigger discloses taking measures to minimize clogging of the membrane filter with suspended solids in the first bioreactor by measures including oxidant addition, injection of upward flowing bubbles and treatment of membrane surfaces to make them hydrophilic (column 5, line 62 through column 6, line 6). Thus, it would have been obvious to one of ordinary skill in the art to have modified the Daigger process embodiment in which wastewater sludge treatment is streamlined by utilizing only a single bioreactor and corresponding

membrane filter adjacent its outlet, by adding coagulant/flocculant to the sludge upstream of that membrane filter, so as to efficiently remove suspended solids from treated clarified water, without clogging/plugging of the membrane filter, while achieving the advantages of streamlining the process to simplify construction and maintenance and to reduce treatment volumes.

The claims also differ from Daigger in requiring the coagulant/flocculant to comprise one or more cationic polymers. However, Peshcer teaches treatment of either solid or liquid effluent containing human or animal waste in a process sequentially employing oxidation, flocculation and membrane filtration in which a mixture of anionic and cationic polymers are employed (column 2, lines 15-49; column 3, lines 17-24; column 4, line 33-column 5, line 3 and column 6, lines 1-48). It would have also been obvious to one of ordinary skill in the art to have modified the Daigger process, by specifically employing cationic polymers, as taught by Pescher, in order to facilitate a more complete solids/liquid separation in the membrane filter by virtue of the mechanism of polyelectrolyte charge functions of these type flocculants.

Regarding claims 2-7, Pescher teaches the specific coagulant/flocculant polymers claimed and thus the claimed molecular weights and specific cationic charges claimed are inherently present in the polymers taught by Pescher (see especially column 4, lines 37-64 and column 5, lines 13-23) including amphoteric and non-ionic blends [as in claims 6-8].

Applicant's arguments filed on September 5, 2003 have been fully considered but they are not persuasive.

It is argued that Daigger proposes to eliminate the second reactor and second membrane filter therein and thus has no suggestion to add coagulant or flocculant to the activated sludge in the remaining membrane bioreactor.

However, it is submitted in clarifiction, that elimination of the second bioreactor and filter does not remove the necessity for substantially removing suspended solids from the clarified water (see Daigger column 7, lines 6-8) which is produced and in a manner which does not cause plugging or clogging of the membrane filter that treats the sludge. It is again emphasized that Daigger is concerned with taking measures to prevent clogging/plugging of the membrane filter which treats the sludge including injection of bubbles, adding of additional oxidant and rendering the surfaces hydrophilic (column 5, line 62-column 6, line 6).

It is also argued that Pescher teaches that microfiltration in a membrane occurs only subsequently to intermediate coarser filtration after addition of cationic polymer, thus is not concerned with using the cationic polymer to prevent clogging/fouling of the membrane. However, it is submitted that whether such reasoning is correct is immaterial, since Pescher is only relied upon for teaching that when wastewater or associated sludge originating from human and/or animal waste is treated with a coagulant/flocculant, that types comprising cationic polymers entail certain advantages.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or other matters pertaining regarding prosecution of this application should be directed to Examiner Joseph Drodge at telephone number (703) 308-0403 Monday-Friday between the hours of 8:30 and 4:45. The Fax number for the Examining Group is (703) 872-9306.

JWD

October 3, 2003

Joseph Drodge
JOSEPH DRODGE
PRIMARY EXAMINER